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CIMARRON WATERSHED ALLIANCE, INC.

**SEARCHABLE ON-LINE DATABASE FOR WATERSHED
HEALTH: AN EDUCATIONAL OUTREACH PROJECT
PROPOSAL**

**A COLLABORATIVE PROJECT WITH CIMARRON
SCHOOL DISTRICT AND RIVER SOURCE, INC.**

**FOR PRESENTATION TO BOARD OF DIRECTORS
DECEMBER 6, 2006**

**PROJECT NAME: SEARCHABLE ON-LINE DATABASE FOR
WATERSHED HEALTH: AN EDUCATIONAL OUTREACH
PROJECT PROPOSAL**

GRANT SUBTASK & CORE WORK PLAN TASK:

- **Grant:** Federal Clean Water Act Section 319 (h), FY 03
Cimarron Watershed Alliance, Inc. Project; Contract No. 05-
667-5000-0009.
- **Core Workplan Task III:** Communicate with stakeholders, agencies,
municipalities, and businesses to improve the health of the watershed and
water; **Subtask a:** Include at least one demonstration project per year to
build capacity for additional development of like projects and **Subtask c:**
Educate the public on watershed issues and Best Management Practices
(BMPs); March 18, 2006 Revision.
- **Deliverables:** Procurement, development, and implementation of a
Watershed Health Database that is searchable by the general public online.
Data will be entered by trained volunteers in the New Mexico Watershed
Watch (NMWW) program under quality control guidelines. Data will be
graphable or delivered in tabular tables for analysis on personal computers
using spreadsheet software.
- **Amendment:** This project will be added as Amendment III.c.4 to the
Cimarron Watershed Alliance Core Work Plan, March 18, 2006 Revision.

OBJECTIVE OF PROJECT: The primary objective of this project is to facilitate public
understanding of issues and best management practices applications relating to the
continued maintenance and enhancement of water quality and quantity in the

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Cimarron River Watershed. In addition, this project will assist in efforts to analyze and understand the impact of human natural resource use and management in the Watershed. This will yield a greater awareness and more in-depth understanding of the consequences of human use and management, by which the public can be given the knowledge and tools to implement treatments and management practices that aid in the mitigation of Watershed health impairments such as turbidity, fecal coliform, and temperature. This project is expected to be scalable to the needs and use of other watershed groups and educational organizations in New Mexico.

BACKGROUND: Watershed associations and schools need an online database to easily upload quality assured data and to provide public access to locally-gathered data by schools and watershed groups.

Note the value of work by high school teachers such as Leigh Hedderman (Cimarron High School, CWA) and Joe Avalos (Ruidoso High School, Ruidoso Riverkeepers). For instance, Cimarron High School teacher Leigh Hedderman gathers river ecology data on a monthly basis as part of the NMWW program which is run by River Source and sponsored by New Mexico Department of Game & Fish (NMDG&F). At a recent teacher training Ms. Hedderman and several other teachers agreed that they face a common challenge in organizing, interpreting, and sharing with the public their data.. In many cases these data sets are 5 years long or greater and are stored on separate spreadsheets for each year. Teachers are challenged by the lack of time to analyze the data as a complete data set and make it available in useful ways to local watershed residents and watershed groups.

River Source runs several volunteer watershed monitoring projects for watershed groups and schools that have quality assurance and control requirements (QAQC) including data collectors at over 50 sites in 5 major river basins in New

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Mexico . Appendix B provides examples of the QAQC procedures for volunteer data from River Source programs.

This project will focus on creating a searchable database that volunteer groups can begin entering data online. The data gathered by Cimarron High School students of Leigh Hedderman will be put online and will be also integrated with the GIS system of the CWA. For more information on River Source go to the following Web address: www.riversource.net

SITE AND LOCATION: This project will be developed and housed under the direction of River Source. The Cimarron Watershed Alliance shall have access to all data and applications developed within the scope of this project.

PROJECT DESCRIPTION: This project focuses on riverine, lake, and wetland areas by providing data analysis and sharing tools that address watershed health for data collectors and data users such as watershed groups, school districts, non-profit, and professional organizations. The searchable watershed health database will enable volunteers to enter quality assured data online and retrieve that data in different formats depending on the data users needs. Data can be delivered via the web in a graphed or tabular format. For instance, water temperature or turbidity measurements over nine months or 3 years can be graphed in a bar chart depending on the time period of interest. Photopoints of restoration projects can be displayed in multiple time series before and after the restoration work is done to look at trends in resource conditions. The ability to display this information to stakeholders on personal computers connected to the internet has the potential to educate a broad group of people.

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DATA SCOPE: Physical, biological, and chemical measurements will be entered in the database. Examples include water temperature, benthic macroinvertebrate community presence and absence of sensitive organisms, and basic stream column chemistry such as pH, and aquatic habitat observations.

TASK LIST:

- ◆ Planning meetings with data users (watershed groups, teachers, restoration practitioners and other non-profit groups such as the Quivira Coalition) to identify data storage and retrieval needs
- ◆ Create a steering committee to guide website development
- ◆ Select contractor to build website
- ◆ Develop beta version (preliminary website version)
- ◆ Populate database with historic data from the NMWW program
- ◆ Train data collectors on Quality Control steps for data entry
- ◆ Beta test the use of the database by data collectors and entry people
- ◆ Training for data users to mine the database for data and do interpretation (beta test the use of the database)
- ◆ Revise database design based on comments from participants in beta-test workshops
- ◆ Go live with website for public with publicity – November 2007

On-going funding needs for tasks implemented on an annual basis

In subsequent years, River Source recommends that several workshops be held to train data collectors in uploading data and to help data users/local watershed restoration project coordinators reports for restoration projects. Site hosting and annual minor adjustments to database to maintain and improve functions and uses of

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database will also be necessary. River Source will work in collaboration with the Cimarron Watershed Alliance, other watershed associations and interested government agencies to raise funds for on-going database maintenance.

This project will be administered by the Cimarron Watershed Alliance and River Source.

COST: (To include Grant and CWA In-Kind Matching)

Grant: Cost to the Cimarron Watershed Alliance Grant will be **\$21,586.50** for the purchase of project supplies, project development, and initial maintenance (see appended A for cost structure).

CWA Match: **\$8,634.60**, which will be generated by Project and CWA in-kind activities.

Total Project Economic Activity: **\$30,221.10**

SCHEDULE AND TIMELINE: The administration of this project will commence upon the approval of the Cimarron Watershed Alliance Board of Directors. Beta-test preliminary version of website ready in August 2007; launch website publicly in November 2007.

PROJECT EVALUATION & MAINTENANCE PLAN: This project will be evaluated by the monitoring information produced and by stakeholder and public feedback as compiled by River Source and the Cimarron School District. The Team Leaders will report to the Cimarron Watershed Alliance on project effectiveness as directed by the Cimarron Watershed Alliance's Monitoring Committee.

TEAM LEADER AND PARTICIPANTS:

Team Leaders: Leigh Hedderman and Richard Schrader

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Participants: Cimarron School District, River Source, and the Cimarron Watershed Alliance.

PERMISSIONS AND PERMITTING:

Dredge & Fill Clearance Required? __Yes XNo

Is any work proposed within the high water mark of a river, stream or Arroyo
__Yes XNo

Cultural Resource Clearance Required? __Yes XNo

Does this proposal involve any earth disturbing activity? __Yes XNo

LIABILITY: None foreseen.

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**CIMARRON WATERSHED ALLIANCE, INC
PROJECT ACHIEVEMENT EVALUATION**

Date Submitted:

**PROJECT NAME: CIMARRON CANYON AND EAGLE NEST STATE PARKS
EDUCATIONAL OUTREACH PROJECT PROPOSAL**

**SUBTASK GRANT & WORK PLAN TASK: (Did the results address original proposal's subtask(s),
If not explain the variation, to include additional subtasks addressed)**

OBJECTIVE EVALUATION: (Compare original objective with the end result)

**SITE AND LOCATION: (Was there any variance from project proposal in the treatment location or
size?)**

**FINAL PROJECT DESCRIPTION: (Were results as expected? Did they meet the objective? If not,
why.)**

FINAL COST: (Include Grant, Matching In-Kind. Explain any deviation from original proposal):

**FINAL SCHEDULE AND TIMELINE: (Was the project completed in the expected time frame? If
not, why.)**

TEAM LEADER AND PARTICIPANTS: (Restate who. Did this change? If so, why?)

EVALUATION: (Did the evaluation metrics change? If so, why?)

PROJECT MAINTENANCE PLAN: (N/A?)

**TEAM LEADER COMMENTS: (Team leader to add any additional comments and observations
here, to include the performance of CWA administration)**

CWA COMMENTS:

**NMED COMMENTS: (NMED to add any additional comments and observations here, to include the
performance of CWA administration)**

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ACKNOWLEDGMENTS:

TEAM LEADER

DATE

CWA EXECUTIVE OFFICER

DATE

ADDITIONAL STAKEHOLDER COMMENTS TO BE ATTACHED BELOW

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Appendix A

Watershed Health Dbase Estimate for River Source Services, Dbase and Website contractor, hosting services

	Rich Schrader		Carol Schrader		total w/GRT	Contractors	Data due
	hours	cost	hours	cost			
Phase I - Design and Construction							
Meetings to plan data pathways with data providers and users (data quality criteria, data types and data analysis tools needed)	28	\$1,960	10	\$450	\$2,410	\$2,575.7	Dec '06 to Apr '07
RFP process to select database and web-interface contractors, Hire and manage contractors	8	\$560	8	\$360	\$920	\$983.3	\$10,000 Apr '07
Enter historic data for Cimarron High School, other WW schools, Rio Puerco Management Committee	8	\$560	29.5	\$1,328	\$1,888	\$2,017.3	June '07
Test first build of the web site with Cimarron students and CWA	8	\$560	2	\$90	\$650	\$694.7	Aug '07
	52	\$3,640	49.5	\$2,228	5867.5	\$6,271	total for phase I \$16,271
Phase II - Public outreach, trainings for data providers and users							
Publicity in multiple newsletters and websites	0	\$0	24	\$1,080	\$1,080	\$1,154.3	fall '07
Training for restoration practitioners to upload data	12	\$840		\$0	\$840	\$897.8	fall '07
Training for restoration practitioners to produce reports on measurable results	12	\$840	30	\$1,350	\$2,190	\$2,340.6	winter '07-'08
	24	\$1,680	54	\$2,430	\$4,110	\$4,392.6	total for phase II \$4,392.6
Sub-totals by person	76	\$5,320	103.5	\$4,658	9977.5	\$10,663	
Direct expenses							
mileage - 1,400 miles at 0.445		623					
Website hosting		300					
	s/t direct	923					
					Rich	Rates	Contractor
					70	Carol	85
						45	
Total project budget		\$21,586.5					
Total contractual going to River Source		\$10,663					
Total contractual going to Web & dbase contracts		\$10,000					

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Other direct expenses - external Hard Drive

200 (River Source will cover this expense)

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Appendix B:

Examples of River Source Quality Assurance and Control Procedures (QAQC)

pH meter and TDS meter calibration with each school visit to verify proper calibration of instruments by teachers and students. Instruments get calibrated if they are not already calibrated and the students and teacher get a verbal feedback on need to calibrate, how to calibrate, and how to address problems with calibration.

Replicate sampling on stream column chemistry and physical parameters to check precision of sampling technique and of instrument readings.

Screening for outlying data points and evaluation of cause of variance to see if human error is the cause. For example, a pattern of rising turbidity values in a set of three results might be caused by sampling water downstream of where students have entered the river. Data will be rejected or not calculated in average results if sampling errors are suspected.

Requirements of local coordinators of volunteer monitoring projects to do Sampling and Analysis Plans (SAPs also known as monitoring plans).